

Federal Energy Management Program

U.S. DEPARTMENT OF
ENERGY | Energy Efficiency &
Renewable Energy



FEMP FIRST THURSDAY **SEMIN@RS 2.0**

What you need to know...online, live, and anytime.

Utility Energy Service Contracts and Energy Project Incentive Funds

Instructors: Julia Kelley, Oak Ridge National Laboratory
Phil Coleman, Lawrence Berkeley National Lab

FEMP Expert: David McAndrew

www.femp.energy.gov/training



Learner Objectives — UESCs

After completing this seminar, the learner will be able to:

1. Explain the purpose and benefits of a UESC.
2. Explore how a UESC might be helpful to address your site-specific needs.
3. Explain the purpose and use of an AWC (Area Wide Contract).
4. Discuss UESC contracting options.
5. Discuss a three-step process for implementing a UESC project.
6. List some FEMP resources available to support you.

Learner Objectives — Energy Project Incentive Funds

After completing this seminar, the learner will be able to:

1. Recognize the different types of energy project incentive funds.
2. Identify why, when, and how Federal agencies can take advantage of these funds.
3. Understand national trends in the funds and what is driving them.
4. Use FEMP's web site to locate which energy project incentive funds are available to your facilities.
5. Leverage these funds to enhance existing – and stimulate new – energy projects at those facilities!

UESC Presentation Agenda

- **Basics**
- **Authorizing Legislation**
- **Contracting Overview**
- **UESC Process**
- **UESC Resources**

UESC Basics

What is a Utility Energy Service Contract (UESC)?

- A UESC is a contracting vehicle that allows utilities to provide to their Federal customers:
 - Comprehensive energy and water efficiency improvements
 - Demand-reduction services



What is a Utility Energy Service Contract (UESC)?

- **The Utility:**
 - fronts the capital costs
 - assesses the opportunities
 - designs and implements the accepted energy conservation measures (ECMs)
- **The Agency repays the Utility:**
 - from appropriations either at acceptance or over time if financing is used

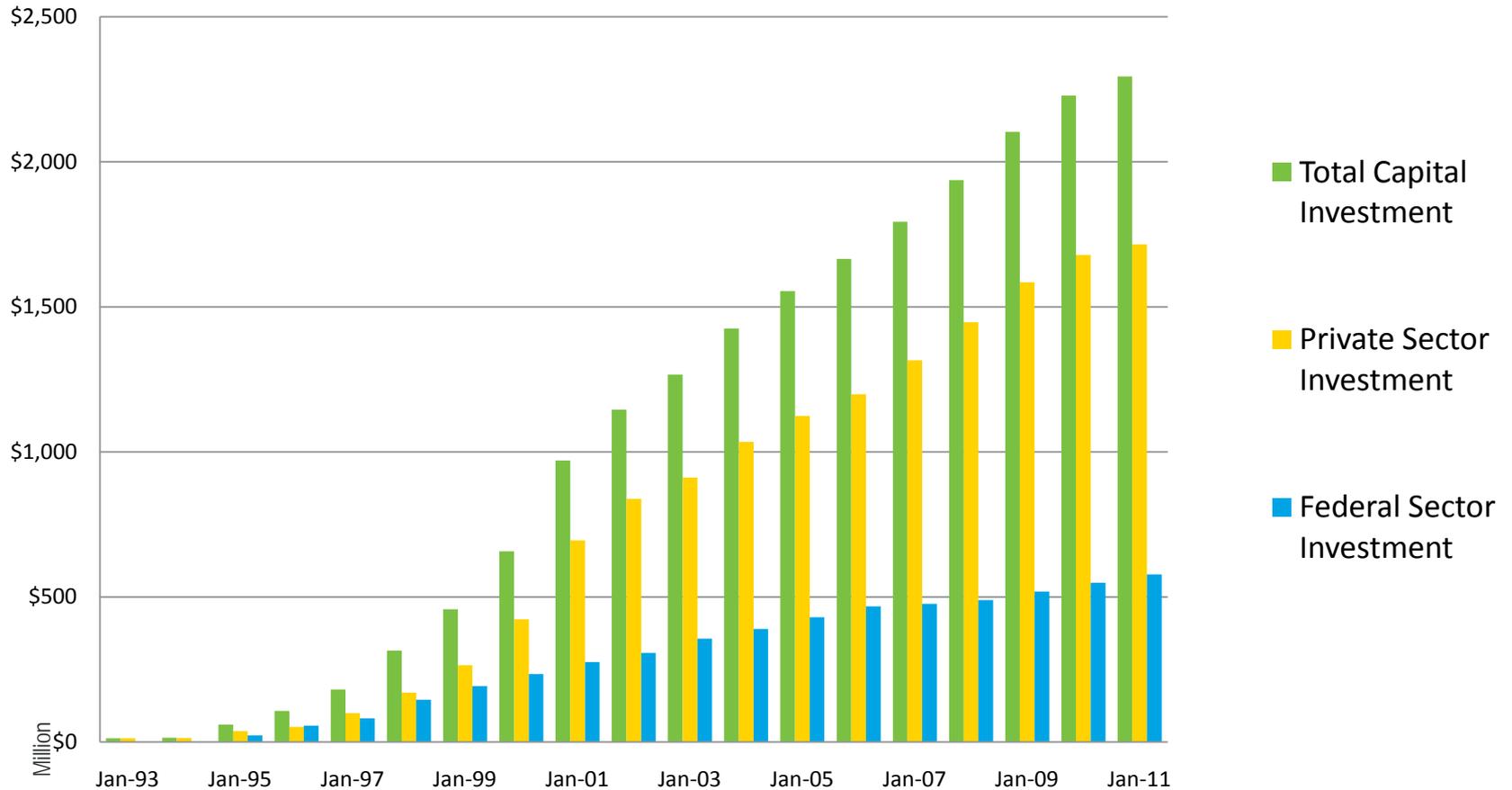


Benefits of UESCs

- Meet agency and legislated goals
- Use energy more wisely
- Reduce operating costs



Increasing Investment in UESCs



Using UESCs to Meet Federal Mandates — EO 13423 and EISA 2007

- Reduce federal facility energy use per square foot by 3% per year, 2006 – 2015, relative to 2003 (or 30% by end of 2015)
- Increase use of renewable energy to
 - not less than 5% of electricity use in 2010 – 2012
 - not less than 7.5% in 2013 and thereafter
 - at least half from new sources each year
 - implement renewables on agency property for agency use as feasible
- Reduce water use by 2% per year, 2008 – 2015 (or 16% by end of 2015)

What You Can Do with a UESC

- **Energy efficiency**
 - Reduce energy demand
 - Install high-efficiency equipment
 - Install control systems
 - Re-commission energy systems
- **Water Efficiency**
 - Reduce water demand
 - Install water efficiency measures
 - Install controls



What You Can Do with a UESC

- **Renewable energy**
 - Implement on-site renewable energy generation
 - Install solar parking structures
 - Install large-scale wind
 - Install co-gen systems



UESC

Authorizing Legislation

UESC Authorizing Legislation

- EPAAct 1992 – 42 USC 8256
- DoD 10 USC 2913 and 2866



Codified as 42 USC 8256; P.L. 102-486

Section 546(c) Utility Incentive Programs: Agencies

- Are authorized and encouraged to participate in utility programs generally available to customers
- May accept utility financial incentives, goods, and services generally available to customers
- Are encouraged to enter into negotiations with utilities to design cost effective programs to address unique needs of facilities used by the agency

10 USC 2913 Contracts and Utilities

Title 10: Armed Forces; Chapter 173; Subchapter 1; Section 546 (c) Utility Incentive Programs

- Encourages participation in gas or electric utility programs for the management of energy demand or for energy conservation
- Agencies may accept financial incentives, goods and services generally available from the utility
- Allows direct negotiation with energy savings contractors selected competitively and approved by the utility

10 USC 2866 Water Conservation Authority

Water Cost Savings Realized –

- Half of the savings shall be used for water conservation activities as designated by DoD
- Half of the savings to be used at the installation at which the savings were realized

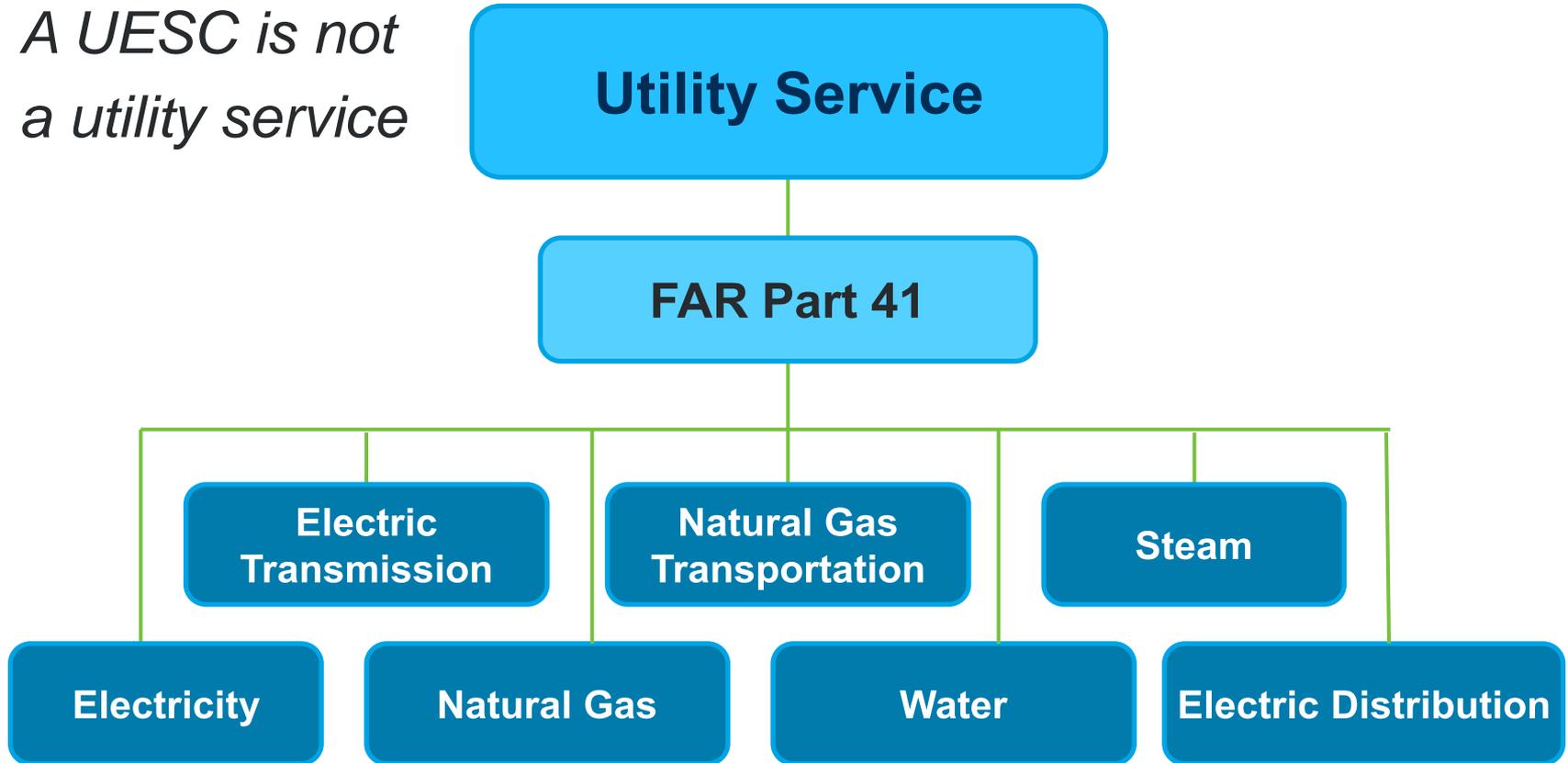


UESC

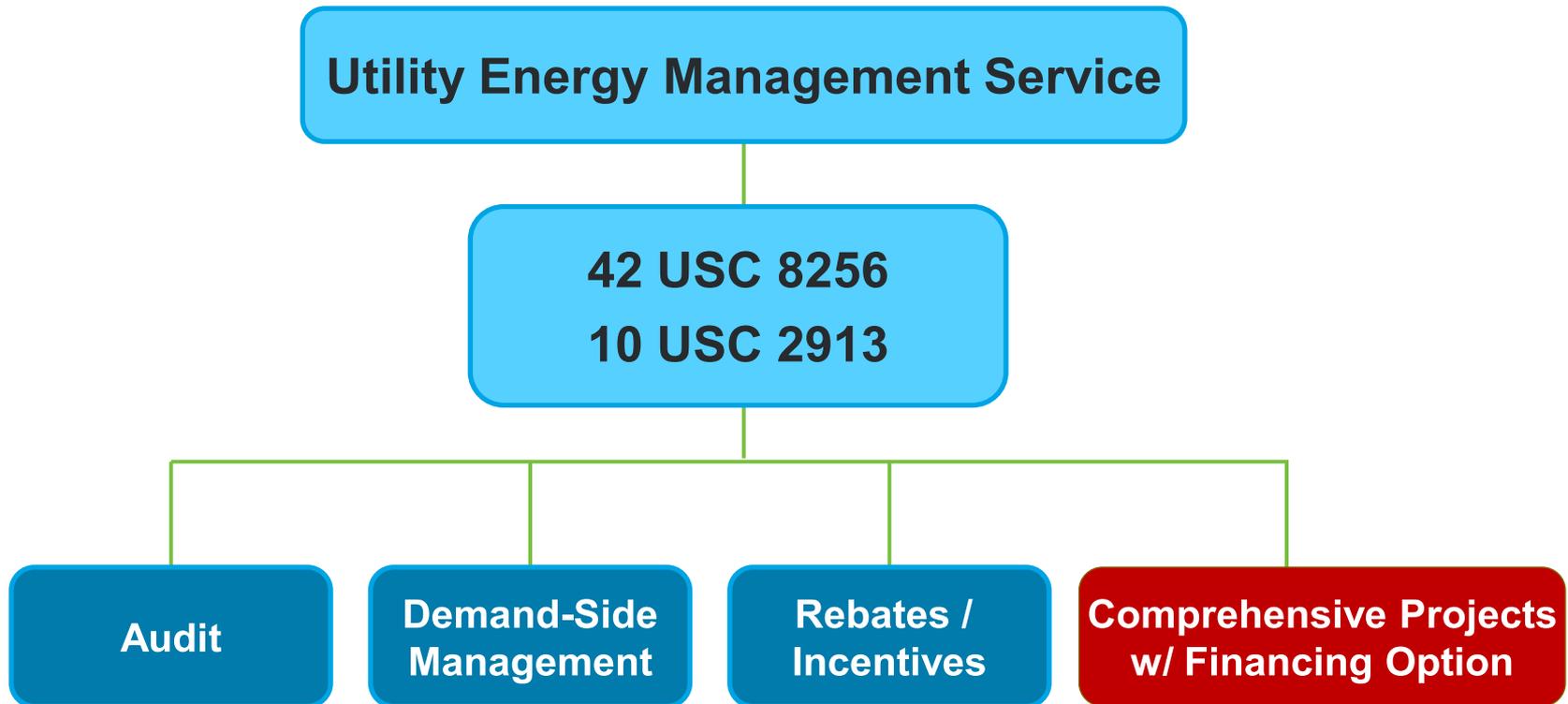
Contracting Mechanisms

GSA Area Wide Contracts (AWC)

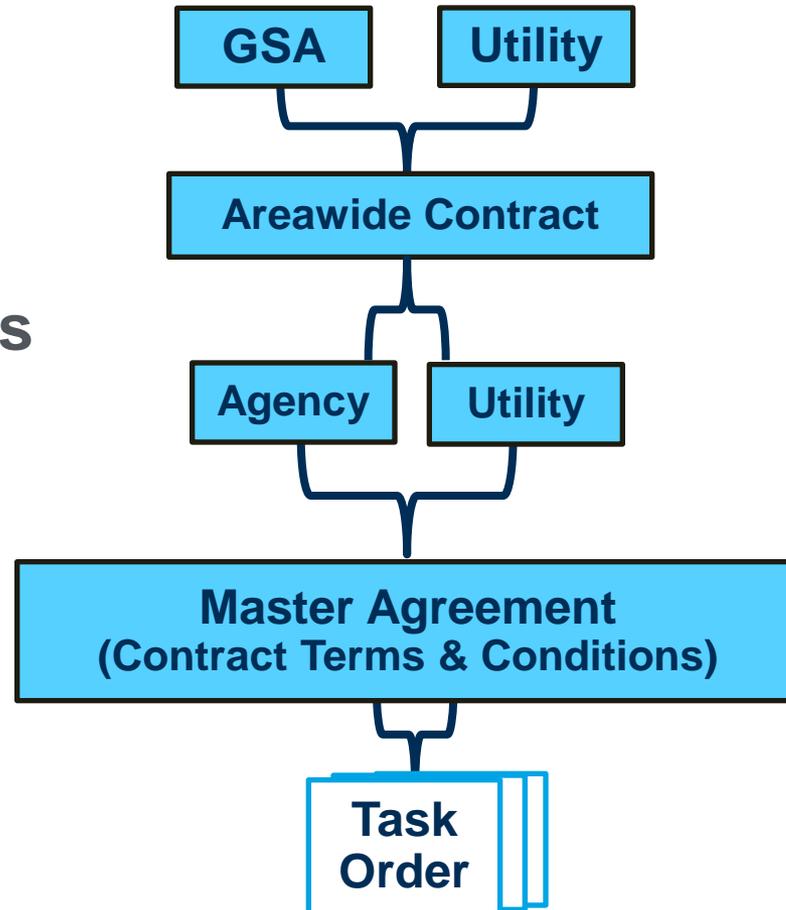
*A UESC is not
a utility service*



Acquiring Energy Management Services under an AWC

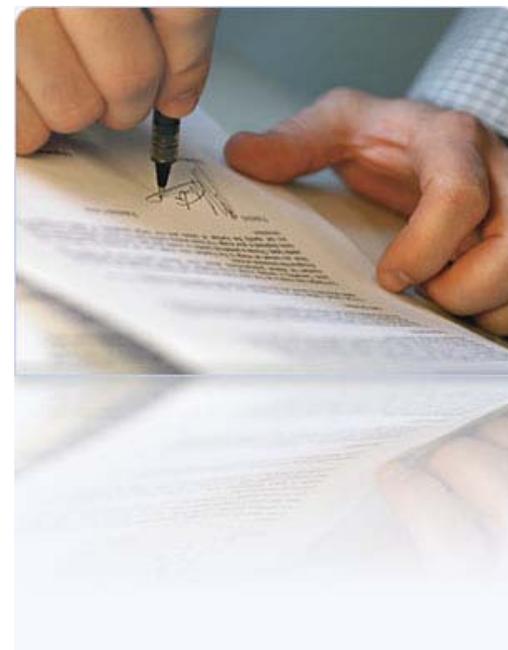


Where an AWC Exists

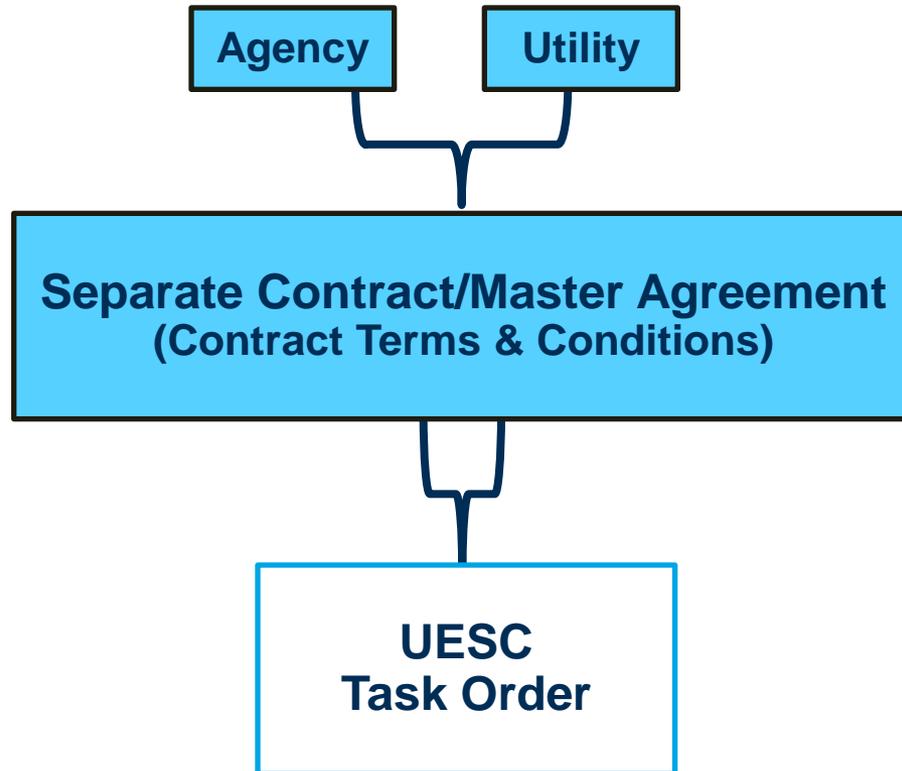


Energy Management Services Authorization (EMSA)

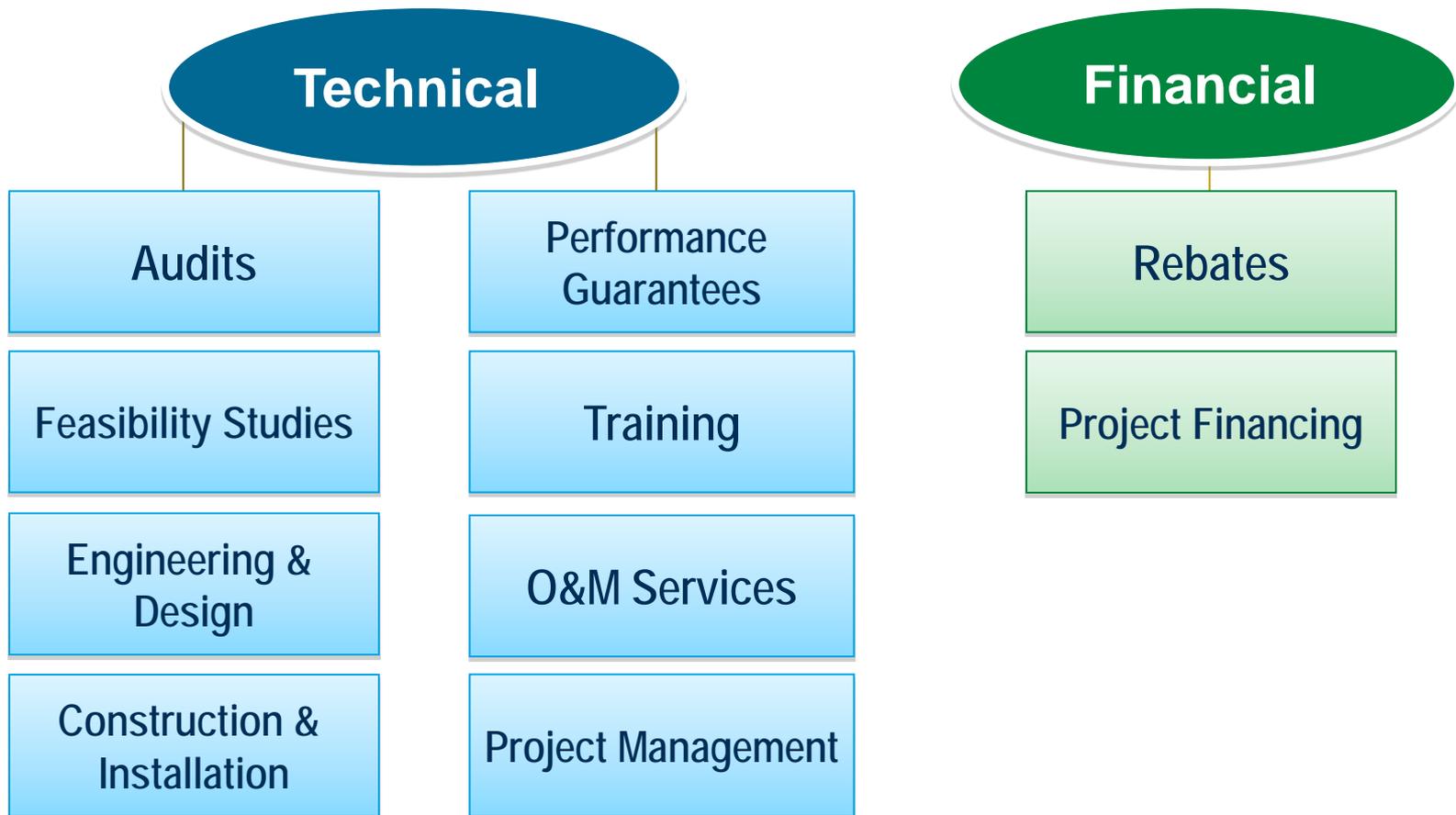
- Nature of service
- Estimated project cost, capital cost, percent of cost financed
- Rebate amount
- Simple payback
- Accounting and appropriations data
- Energy conservation measures
- Signed by Agency and Utility

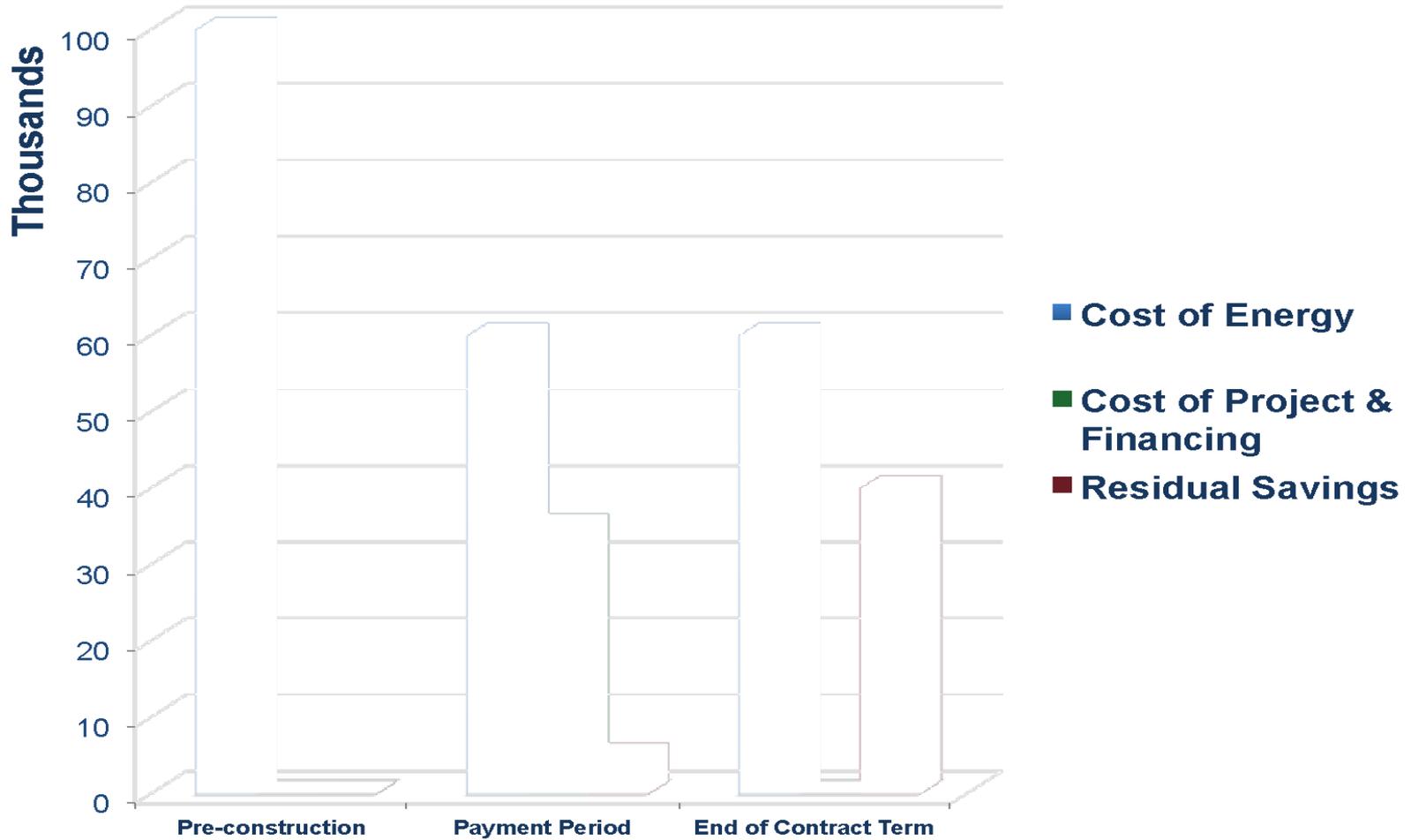


Where an AWC Does Not Exist



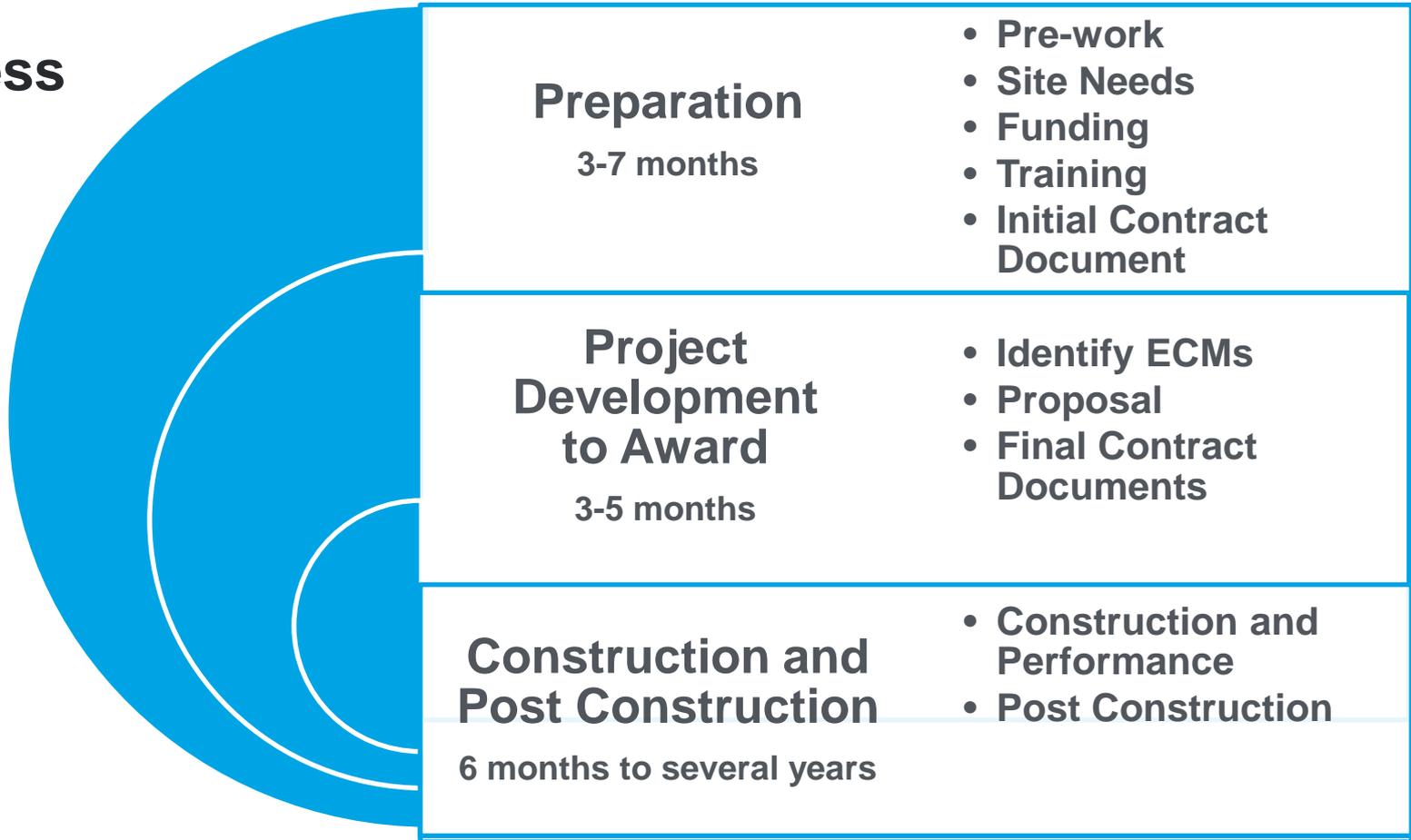
Typical UESC Offering





UESC Process

UESC Process



Preparation Phase: Agency Acquisition Team

- Membership
- Roles and responsibilities
- Contracting
- Legal
- Technical
- Energy Champion



Agency Team is needed to:

- Move a UESC project forward correctly and efficiently
- Bring together the people with knowledge, experience, and responsibility
- Gain support for the effort early in the process
- Involve those who will be affected by the project



Agency Team Should Consist of:

- At least, a Contracting Officer and Technical Representative for the Agency
- Ideally, everyone who will help, hinder, or be affected by the project

Project Development: Preliminary Audit

- Broad assessment of the potential for energy and water efficiency measures
- Based on a review of existing facility use and conditions
- Examination of energy- and water-consuming equipment and control systems



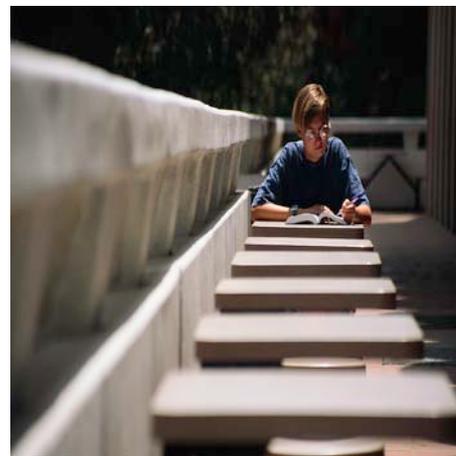
Preliminary Audit

- **Assessment of existing facility**
 - Campus or single building?
 - Office or laboratory?
 - 8 hours/day or 24 hours/day?
 - Circa 1950 or 2005?
- **Analysis of**
 - Energy- and water-consuming equipment, systems, and controls
 - Utility data for electricity, natural gas, steam, water, etc.



Preliminary Audit – Best Practices

- Negotiate cost of audit with the utility
- Include description of facilities/systems to be studied
- Include any agency-specific requirements
- Sign a Task Order for the audit
 - Indicate the negotiated cost
 - Attach Scope of Work for the audit



Project Development: Feasibility Study

- An “investment-grade” analysis of the site’s conditions and potential efficiency improvements
 - Details the technical and economic viability of proposed ECMs
 - Complies with the Task Order statement of work
 - Provides sufficient information for a decision to go forward



Feasibility Study

- Establishes the basis for the project design and finalizes the baseline
- Detailed assessment of existing facility use and conditions
- Detailed analysis of
 - Energy- and water-consuming equipment, systems, and controls
 - Utility data for electricity, natural gas, steam, water, etc.



Feasibility Study – Best Practices

- Negotiate cost of the Feasibility Study with the utility
- Sign a Task Order for the Feasibility Study
 - Indicate the negotiated cost
 - Attach Scope of Work for the study

Project Development: Performance Assurance

- Minimum level of performance assurance planning recommended for UESC by FEMP:
 - Start-up performance verification
 - Performance verification at the end of the warranty period
 - O&M training at construction and periodically during the contract period
 - Periodic inspections and performance verification
 - Assessment and resolution of performance discrepancies

Project Development: Performance Assurance

- Agree on the baseline
- Clarify performance objectives
- Consider interactions between measures
- Specify verification method for each measure
- Identify financial and staff impacts and requirements
- Indicate reporting format & schedule

Project Development: Commissioning

- Commissioning objectives
 - Support effective O&M with training, documentation, and maintenance strategies
 - Identify O&M procedures that improve energy efficiency
 - Optimize equipment and control systems
- Develop “design and operating intent” early in the process
(Feasibility Study kick-off meeting)



Commissioning

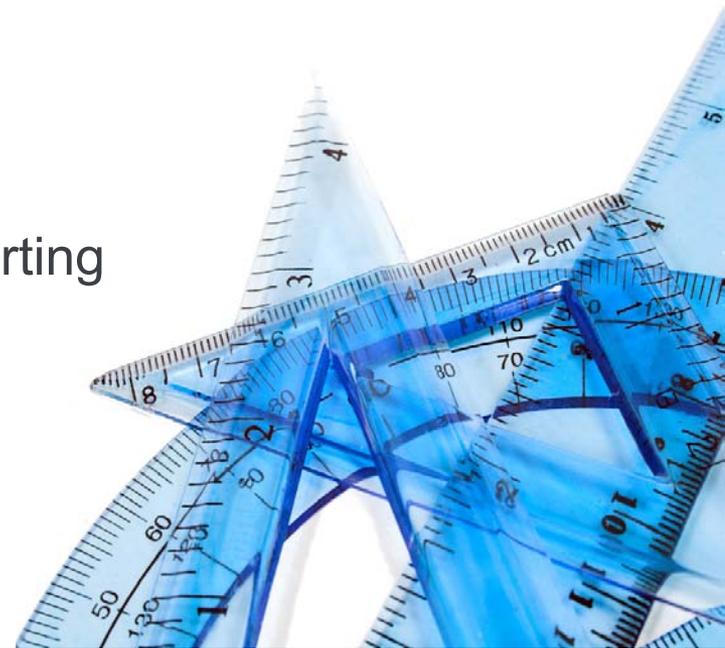
- Review design with a focus on commissioning and maintenance
- Develop Commissioning Plan
 - Include specific actions for commissioning during construction, acceptance, and post-acceptance



Project Development: Measurement and Verification

FEMP's five steps to effective M&V:

1. Establish the M&V option and method
2. Prepare a site-specific M&V plan
3. Define a baseline
4. Monitor the installation of the energy conservation measures
5. Conduct periodic verification and reporting



UESC Resources

FEMP UESC Website

- Types of contracts
- Laws and regulations
- Financing mechanisms
- Technology resources
- Case studies
- Training opportunities

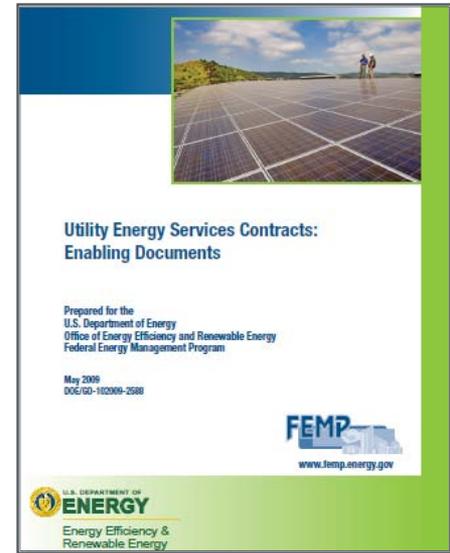


<http://www1.eere.energy.gov/femp/financing/uescs.html>

UESC Enabling Documents

- Legislation and Executive Actions
- Legal Opinions
- Agency Guidance
- Sample Documents

http://www1.eere.energy.gov/femp/pdfs/uesc_enabling_documents09.pdf



Getting Started – Partnering Avenues

- **Federal Utility Partnership Working Group (FUPWG)**
 - Establishes partnerships and facilitates communications among Federal agencies and utilities
 - Develops strategies to streamline sound projects
 - Open meeting on April 20-21, 2011, Portland, Oregon
- **Strategic Partnering Meetings**
 - FEMP supports Federal-Utility Strategic Partnering Meetings to enhance partnerships and to launch utility incentive programs, including UESC

DOE FEMP Sponsored Project Support

Education

- UESC Workshops
- UESC Overview
- Web Training

GovEnergy 2011

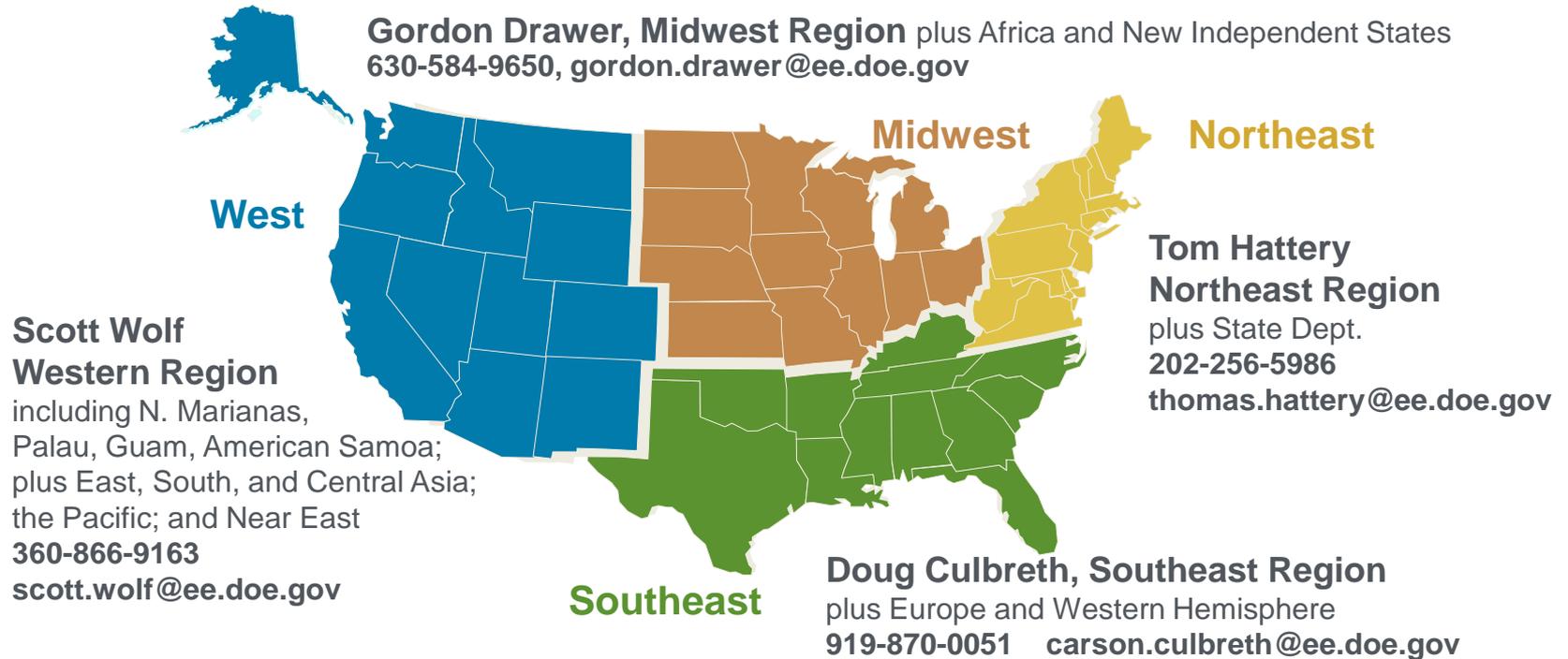
- A River of Energy Solutions
- August 7 – 10, Cincinnati, Ohio



DOE FEMP Sponsored Project Support

- **Direct Project Support**
 - Guide agency teams through the UESC process
 - Help with development of contract documents and provide document templates
 - Technical review of audits, feasibility studies, and proposals
 - In-depth technical support
 - Build partnerships and facilitate relationships





**Contact the following for information on
utility energy service contracts (UESCs) and partnerships:**

David McAndrew

FEMP Utility Services Program

202-586-7722

david.mcandrew@ee.doe.gov

Bill Sandusky

Pacific Northwest National Laboratory

509-375-3709

bill.sandusky@pnl.gov

Karen Thomas

National Renewable Energy Laboratory

202-488-2223

karen_thomas@nrel.gov

Julia Kelley

Oak Ridge National Laboratory

865-574-1013

kelleyjs@ornl.gov

DOE FEMP

Utility Program Lead

David McAndrew

202-586-7722

david.mcandrew@ee.doe.gov



Julia Kelley

Oak Ridge National Laboratory

865-574-1013

kellyjs@ornl.gov



Energy Project Incentive Funds



What are Energy Project Incentive Funds?

- **Most states offer programs to reduce customer costs associated with:**
 - Energy efficiency (EE) projects
 - Renewable energy installations
- **These initiatives are growing:**
EE funding alone will likely approach \$6B in 2011
 - This is roughly double the 2008 figure
 - Another ~ \$1.5B available for renewables



Where's the Money Coming From?

- **Conventional (and still common):**
Utility uses revenues from its energy sales
 - Must first get approval from its public utility commission (PUC)
- **More recent:**
Legislature approves state-wide
- surcharge for “public benefit fund”
 - “systems benefit charge,” “state conservation surcharge,” etc.
 - usually assessed per kWh or therm



What's Driving These Funds?

- **Ultimate driver: energy efficiency is cheaper than energy generation**
 - EE programs, en masse, cost ~ 2-5¢/kWh and 30-60¢/therm avoided
(source: ACEEE, others)
- **And easier**
 - no siting, permitting, or transmission issues



What Are the Trends?

- **Growth, particularly in long term**
 - Popular with legislatures and PUCs
 - LBNL study indicates potential for another doubling (to ~ \$12B) by 2020
- **One caveat**
 - Public benefit funds in two states and DC have been raided by legislatures
 - Funds were used to fill gap in general state coffers



Who Administers the Programs?

- The utilities themselves in most states
- Some states use other administrators
 - 3rd-party organization (WI, OR, VT, DE)
 - State agency (IL)
 - State-chartered corporation (NY)



What Kinds of Programs Are Offered?

- **Most common are equipment rebates**
 - Prescriptive – fixed \$ amount per efficient product purchased (e.g., occupancy sensor or high-efficiency air conditioner or boiler)
 - Custom – for non-covered products; usually requires some demonstration of savings
- **Custom programs may also incentivize “whole-building” savings**
 - payment then based on kWh or therm savings



Other Programs Are Sometimes Available

- EE new construction incentives
- Design assistance
- No- or low-cost energy audits
- Re-/retro- commissioning incentives
- Incentives for performance contractors
 - remuneration based on kWh/therm savings
- Load management programs
 - payment based on peak kW reduction



Renewable Energy Incentive Programs

- Most common: rebates for on-site solar PV
- Up-front or performance-based
- Other technologies include:
 - wind, geothermal, small hydro, biomass
- Renewable energy credit (REC) sales are primary source of incentives in some states
 - driven by state renewable portfolio standards
- Tax incentives: requires outside ownership



Yes, Federal Agencies May Use these Funds!

- **Energy Policy Act of 1992:**
 - “Agencies are authorized and encouraged to participate in programs to increase energy efficiency and for water conservation or the management of electricity demand conducted by gas, water, or electric utilities and generally available to customers of such utilities.”
 - “Each agency may accept financial incentives, goods, or services generally available from any such utility to increase energy efficiency or to conserve water or manage electricity demand.”

EPACT-'92 Language Specifies “Utilities”

- Does this mean that incentive funds from other sources, such as state agencies or 3rd-party providers, can't be accepted?
- FEMP interprets EPACT language to be inclusive because it was written prior to the existence of non-utility incentive providers
 - Remember: “generally available to customers of such utilities”
- Attorneys at two Federal agencies have argued otherwise

Great, But How Do We Accept the Money?

- **Many Federal facilities have difficulty accepting checks**
 - **Work-around #1:**
Assign payment directly to contractor
(e.g., electrical firm or ESCO)
 - Most incentive programs make this easy
 - **Work-around #2:**
Have incentive applied directly to
utility account
 - Obviously more difficult with
non-utility providers



Are there other things to watch for?

- Many programs require pre-approval
 - And some have measurement and verification (M&V) requirements to demonstrate savings
- Many programs have finite budgets that can get exhausted before end of year
- Programs and rules change year to year
 - Pay attention and get friendly with your rep!

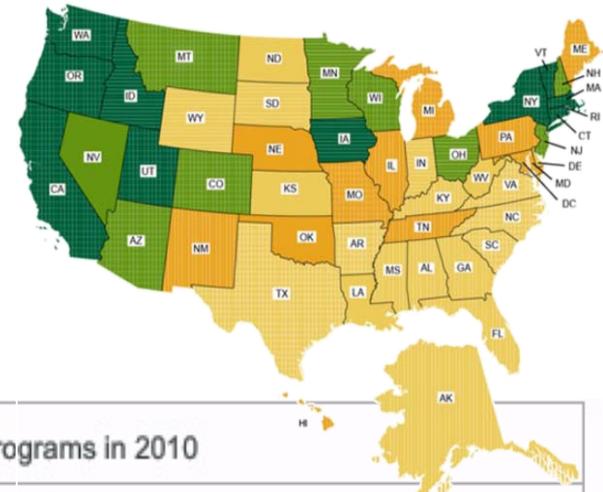


Which Funds are Available to Our Facilities?

- FEMP provides clickable map with annotated listing of all programs open to Federal facilities:
 - eere.energy.gov/femp/financing/energyincentiveprograms.html
 - Navigate through “Financing Mechanisms” tab of FEMP site
 - Includes renewables and demand response (DR) programs
- Similar to **DSIRE**
(Database of State Incentives for Renewables and Efficiency):
www.dsireusa.org

Energy Incentive Programs

eere.energy.gov/femp/financing/energyincentiveprograms.html



	These states budgeted over 2% of electric revenues for electric energy efficiency programs in 2010
	These states budgeted between 1% and 2% of electric revenues for electric energy efficiency programs in 2010
	These states budgeted between 0.5% and 1% of electric revenues for electric energy efficiency programs in 2010
	These states budgeted less than 0.5% of electric revenues for electric energy efficiency programs in 2010 or did not provide data
	These states have distributed generation (including renewables) programs available
	These states have gas programs

Questions Answered State by State

- What public-purpose-funded energy efficiency programs are available in my state?
- What utility energy efficiency programs are available?
- What load management/demand response options are available?
- What distributed energy resource options are available?
- Are there energy efficiency programs sponsored by state government?
- What additional opportunities are available?



Typical Program Description

Idaho Power sponsors the [Energy Efficiency for Business](#) initiative. Two programs may be of interest to Federal facilities:

- The [Easy Upgrades for Simple Retrofits](#) program offers incentives of up to \$100,000 per site per year for qualifying energy-saving projects ...
- The [Custom Efficiency for Complex Projects](#) program provides large commercial and industrial customers financial incentives based on \$0.12/kWh savings ...



Summary

Lots of opportunities exist for leveraging your projects

- Start with the FEMP state-by-state map
- FEMP Contact:
 - Tracy Logan
202.586.9973
Tracy.Logan@ee.doe.gov



**The Department of Energy (DOE)
Federal Energy Management Program (FEMP)**
facilitates the Federal Government's implementation of sound,
cost-effective energy management and investment practices
to enhance the nation's energy security and
environmental stewardship.

